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ABSTRACT

This report addresses the teaching of early reading in Wisconsin, focusing on the Direct Instruction approach and the methods or lack thereof for informing teachers of the approach and of the possibilities and applications for their classrooms. A sample of new Wisconsin teachers were surveyed and six Wisconsin schools were visited to observe teachers using Direct Instruction. The main findings are: (1) the research base for Direct Instruction is unusually solid; (2) the new teachers had learned little about Direct Instruction in their training programs; (3) in the schools visited, Direct Instruction looks as good in practice as it does in the research studies; and (4) Direct Instruction takes time to learn, and the teachers observed fell at different points along the learning curve. Findings suggest that Direct Instruction holds promise for improving the teaching of early reading in Wisconsin. Recommendations are: parents and educators interested in Direct Instruction should visit schools using Direct Instruction and should band together to share information and muster support for Direct Instruction; the Wisconsin Legislature and Department of Public Instruction should support local school districts in Direct Instruction startup activities; and schools and colleges of education in Wisconsin should refocus their preservice teacher training efforts in instruction in the practice of teaching. Contains 24 references, and 2 tables and 2 figures of data. The Teacher Training Survey is attached. (RS)

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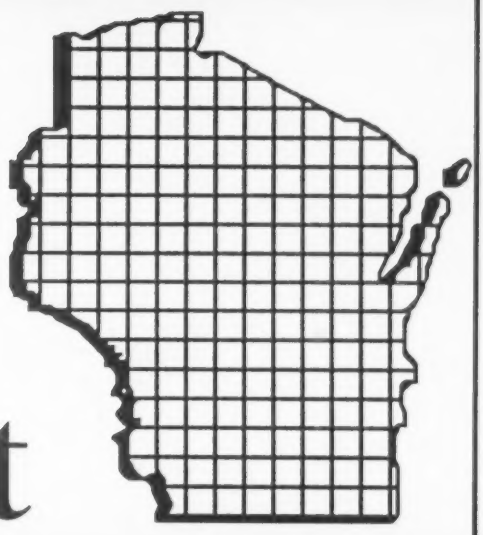

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DIRECT INSTRUCTION AND THE TEACHING OF EARLY READING

Wisconsin's Teacher-Led Insurgency

CS 014 345

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REPORT FROM THE PRESIDENT:

In fourteen years we have published over 100 original academic studies. This is one if the most important projects that we have ever funded. Professor Mark Schug, retired Professor Richard Western, both of the School of Education at the University of Wisconsin-Milwaukee, and Professor Sara Tarver from the Department of Rehabilitation Psychology and Special Education at the University of Wisconsin-Madison have examined the issue of Direct Instruction.

They have discovered that this approach to teaching has dramatic positive results in young children in the State of Wisconsin, and across the country. More importantly, they have supplied data indicating that this method can have dramatic impact on poor children in urban cities. The added importance of this study is that, in their research, they describe Direct Instruction as being skills-oriented and emphasizing the use of small group, face-to-face instruction by teachers and aides, using carefully articulated lessons in which cognitive skills are broken down into small units.

What is extraordinary is that these results almost match research on the SAGE program done by very liberal academics. Their data show that the most successful SAGE teachers, "learn to increase the focus of their instruction on academic learning, employing teacher-directed basic oriented individualism with special emphasis on student articulation of understandings, teacher critique and reteaching." What these academics are saying is that traditional practices for the teaching of reading produce better results than whole language for our inner city children.

Both these studies go against the current chic thinking in schools of education — that child-centered, whole language programs are the way to go. They haven't worked in the past and they are not likely to work in the future. More importantly, as Schug, Tarver and Western point out, there are potentially enormous savings if school districts begin to implement Direct Instruction. The reason is that, especially in our inner city schools, you can save millions of dollars in special education expenses with decreased need for remedial reading programs in Wisconsin.

Therefore, this study draws two conclusions. One, it is much more effective for children, especially poor children, to be taught with the approach called Direct Instruction. Secondly, it is much more efficient for Wisconsin taxpayers to have their money spent on reading programs that work, rather than wasting millions, if not hundreds of millions of dollars, annually on trendy school of education programs that have failed in the past, are failing in the present, and will fail in the future.

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DIRECT INSTRUCTION AND THE TEACHING OF EARLY READING

Wisconsin's Teacher-Led Insurgency

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Executive Summary

This report addresses the teaching of early reading in Wisconsin. It focuses initially on a curious set of facts.

First, there is an approach to teaching early reading — an approach called Direct Instruction — that is known to work very well. It is a highly organized, teacher-directed approach informed by a careful analysis of the skills that must be acquired by anybody learning to read. Given the successful track record of this approach, and given the undisputed importance of getting children off to a good start in reading, one might suppose that Wisconsin's educators would be seen hard at work implementing Direct Instruction and helping new teachers learn to use it. But that is not the case. Many leading educators ignore Direct Instruction altogether, and others smear it by misrepresentation and ridicule when they mention it at all.

Second, despite this climate of indifference and hostility, there has emerged in Wisconsin a sort of insurgency movement led by teachers and principals who have learned about Direct Instruction on their own and who have found ways of their own to begin implementing Direct Instruction programs in their schools.

This juxtaposition of facts raises obvious questions. Why would some educators oppose a proven method of teaching early reading — one with an expanding base of support among classroom teachers? Why would some classroom teachers buck the professional tide, working on their own to master and implement an approach to teaching that differs greatly from the approaches that they have generally been trained to use? Can we learn anything from this controversy that might suggest new directions for reading education in the state?

To explore these questions, we have reviewed the research base for Direct Instruction, surveyed a sample of new Wisconsin teachers to find out what they learned about Direct Instruction in their training programs, and visited in six Wisconsin schools to observe teachers using Direct Instruction and to talk with them, and their principals, about their experience with it. Our main findings are as follows.

- The research base for Direct Instruction is unusually solid. Basic research and evaluation studies carried out by various methods, in several settings, and over a period of more than 25 years, show that Direct Instruction has strong, positive effects on children's achievement in reading, as measured by tests of decoding skills, reading comprehension, and attitudes toward reading.
- Most recently trained elementary school teachers in our sample had learned little about Direct Instruction in their training programs, and what little they knew, they apparently learned from their cooperating teachers, not their university coursework.
- In the six Wisconsin schools we visited, Direct Instruction looks as good in practice as it does in the portrait presented by published research. In these schools, teachers and principals report that Direct Instruction has produced excellent results — for regular-education students as well as special-education students — in children's decoding skills, reading comprehension, and attitude toward reading. They also report other positive effects including improvements in children's classroom behavior and in their capacity to focus and sustain effort on academic tasks. They report no negative side effects (nor did we observe any).
- In the six schools, the general record of successful implementation is also marked by two qualifications. First, Direct Instruction takes time to learn, and the teachers we observed fell at different points along the learning curve, depending upon their Direct Instruction training and experience. Second, principals and teachers in some schools encountered resistance to Direct Instruction from district-level specialists. In these cases especially, they had to struggle to find money for Direct Instruction training, which they regarded as essential to the success of their initiatives.
- Given its solid research base and its base of support among classroom teachers who have learned to use it, Direct Instruction holds strong promise for improving the teaching of early reading in Wisconsin. Widespread uses of Direct Instruction would directly benefit children and parents. In addition, improvements gained through competent, widespread use of Direct Instruction would decrease the need for remedial reading programs in the state. Potential cost savings from such a decrease can be estimated by reference to the cost of one important remedial program — special instruction for children classified as learning disabled (LD) — into which many children are now placed when they do not learn to read well in the early grades. A 25 percent reduction in LD placements would yield an annual cost savings of more than $35 million; a 50 percent reduction would yield annual savings of about $71 million; and a 75 percent reduction would yield savings of $107 million.

In light of these findings, we offer four recommendations:

- Parents and educators interested in Direct Instruction should visit schools using Direct Instruction to see for themselves how it looks in practice.
- Parents and educators interested in Direct Instruction should band together to share information and muster support for Direct Instruction initiatives.
- The Wisconsin Legislature and Department of Public Instruction should support local school districts in Direct Instruction start-up activity through a grants program for payment of Direct Instruction training costs.
- In light of the Direct Instruction example, schools and colleges of education in Wisconsin should refocus their preservice teacher training efforts on instruction — on the practice of teaching.

Introduction

This report addresses the teaching of early reading in Wisconsin. It focuses initially on a curious set of facts. There exists an approach to teaching early reading — an approach called Direct Instruction — that has been shown by research and experience to work very well. Given the track record of this approach, and given the undisputed importance of getting children off to a good start in reading, one might suppose that Wisconsin's leading educators would be seen hard at work implementing Direct Instruction, striving to learn more about it, and helping new teachers to get started using it. But that is not the case. Many of Wisconsin's leading educators ignore Direct Instruction altogether, and others smear it by misrepresentation and ridicule when they speak of it at all. As a result, most K-12 teachers move through their careers learning little about Direct Instruction, despite its record of success in fostering student learning. One can get some sense of how odd this is by trying to imagine, say, Wisconsin medical schools and hospitals in which the senior staff take no interest in the germ theory of disease and go out of their way to discourage doctors and nurses from making use of the medical practices that theory implies.

Yet despite this general climate of indifference and hostility, there has emerged in Wisconsin a sort of insurgency movement led by teachers and principals who have learned about Direct Instruction on their own and who have found their own ways to begin implementing Direct Instruction programs in their schools. Several schools in the Milwaukee area and elsewhere in the state now use Direct Instruction to some degree in their early reading programs, and the movement is spreading as more and more teachers learn about Direct Instruction from their colleagues.

Altogether, it is an intriguing state of affairs. Why would some educators oppose a teaching method that has a strong research base and an expanding base of support among classroom teachers who swear that it works better than anything else they have ever tried? Do the skeptics suppose that teachers suffer from a surfeit of pedagogical riches — burdened down by their attachment to so many successful methods for teaching reading that acquiring one more would amount to vulgar excess? And why would some classroom teachers buck the tide — working on their own, often at a considerable cost in time and effort, to learn and implement a teaching method that differs greatly from the methods most of them have been trained and encouraged to use? Can we learn anything from this controversy that might suggest improved policy and practice in the teaching of early reading?

To explore these questions, we have reviewed scholarship about Direct Instruction, especially as it pertains to teaching early reading. We have surveyed recent graduates of teacher training programs in Wisconsin, in order to learn about the extent to which Direct Instruction was emphasized in their training programs. And we have visited in six schools, observing teachers at work and discussing (with them and their principals) their schools' experiences with Direct Instruction. In the report that follows we discuss results from these inquiries in light of the controversy noted above. The discussion concludes with some observations about the high cost of failure in the teaching of reading. To get started, however, we begin with a brief note describing Direct Instruction.

What Is Direct Instruction?

Direct Instruction is an approach to teaching. It is skills-oriented, and the teaching practices it implies are teacher-directed. It emphasizes the use of small-group, face-to-face instruction by teachers and aides using carefully articulated lessons in which cognitive skills are broken down into small units, sequenced deliberately, and taught explicitly (See Carnine, 2000, pp. 5-6; Traub, 1999).

Direct Instruction derives mainly from two lines of scholarship and curriculum development. One line of scholarship is based on a synthesis of findings from experimental studies (conducted by many different researchers, working independently, mostly in the 1980s) in which teachers were trained to use particular instructional practices. These practices then were assessed for their effects on student learning, and the effects were compared with effects for similar students who had not been taught according to the experimental method. The synthesis growing out of these studies identified common "teaching functions" abstracted from the experiments that had proved effective in improving student learning. These teaching functions included teaching in small steps with student practice after each step, guiding students during initial practice, and ensuring that all students experienced a high level of successful practice. Instruction of this sort was described variously by the people who used it and discussed it. It was sometimes called systematic teaching, or explicit teaching, or active teaching. In an influential essay, Barak Rosenshine and Robert Stevens (1986) called it direct instruction, and this is the name by which it is now most often known.

As Rosenshine and Stevens describe it, direct instruction is a teaching model, not a particular, fully elaborated program for teaching, say, reading or mathematics. It is abstracted from detailed procedures found, for example, in particular training manuals and materials, and it implies nothing definite about how teachers who make new uses of it might best fulfill the teaching functions it embodies (Rosenshine & Stevens, 1986, p. 389). It is a generic teaching model, in other words — one awaiting subsequent interpretation and development in particular applications.

Interpretation and development of that sort has been provided in a second line of scholarship associated primarily with the work of Siegfried Engelmann and his colleagues. Their work goes beyond the generic direct instruction model, providing detailed teaching programs consistent with its main principles. Engelmann and his colleagues call their programs Direct Instruction or DI programs, using upper-case type to distinguish them from the earlier, generic formulations. (We follow their upper-case usage convention in this report).

The texture of detail in Direct Instruction derives in part from its foundation in close analyses of the comprehension and reasoning skills needed for successful performance in, say, reading or mathematics. These skills provide the intellectual substance of Direct Instruction programs. In the case of reading, it is substance found in the sound system of spoken English and the ways in which English sounds are represented in writing. That is why Direct Instruction is associated with phonemic awareness, or phonics. But Direct Instruction is not the same thing as phonics, or "merely phonics." Direct Instruction can be used to teach things other than phonics — mathematics and logic, for example — and phonics can be taught (as it often has been) by means other than Direct Instruction.

The detailed character of Direct Instruction derives also from a learning theory and a set of teaching practices linked to that theory. The learning theory focuses on how children generalize from present understanding to understanding of new, untaught examples. This theory informs the sequencing of classroom tasks for children and the means by which teachers lead children through those tasks. The means include a complex system of scripted remarks, questions, and signals, to which children provide individual and choral responses in extended, interactive sessions. Children in Direct Instruction classrooms also do written work in workbook or activity sheets.

Many published instructional programs have made some use of insights from Direct Instruction (or direct instruction). Taken at a high level of generality, at least, those insights are not private property. But Direct Instruction to date is represented most clearly and extensively in instructional programs published by SRA/McGraw-Hill. When Wisconsin educators talk about adopting Direct Instruction, the programs in question are most likely the SRA/McGraw-Hill programs. Other publishers, of course, could enter the market, if they chose to do so, by developing new applications of the underlying direct instruction principles.

Direct Instruction And The Reading Establishment

To many educators and other interested parties, Direct Instruction looks bad. It is "ugly but effective," according to one well-informed observer (Traub, 1999). Others have been less judicious. Direct Instruction is harmful for all children, according to David Elkind, an authority on child development, but

> it is even worse for young disadvantaged children because it imprints them with a rote-learning style that could be damaging later on. As Piaget pointed out, children learn by manipulating their environment, and a healthy early education program structures the child's environment to make the most of that. [Direct Instruction], on the other hand, structures the child and constrains his learning style. (As quoted in Carnine, 1999, p. 8)

Because Elkind's remarks typify a widespread, negative view, they are worth a second look. We notice that Elkind mentions nothing about evidence showing that Direct Instruction works well to help children learn to read. He concedes no possibility that disadvantaged children, particularly, might benefit from Direct Instruction for that reason, or that their parents might be gratified by the outcome. He does not specify the constraints that "could be" damaging later on (say "could" and you can't tell a lie), nor does he refer to any evidence showing that damage caused by an imprinted, rote-learning style has ever occurred, by land or sea. Instead Elkind invokes the mystique of Jean Piaget, a brilliant developmental theorist who never wrote a word about the teaching of reading; and by this gambit the pedagogical question is recast as a question of ideology and identity: Are you with Piaget and the children or against them?

Why would accomplished academicians set aside the norms of precise statement and valid argument that are otherwise second nature to them, in order to free themselves up for trashing Direct Instruction? To grasp the underlying issue one must know something about how Direct Instruction differs in its assumptions and practices from more informal, student-centered approaches to teaching reading.

The student-centered approaches include whole-language and literature-based teaching, and they come in several variations and combinations. They are difficult to summarize, in part because their proponents have more to say about beliefs and intentions than they do about teaching practices, but in general the student-centered approaches take children's interests as their crucial starting point. They assume that mobilization of those interests via imaginative, age-appropriate activities will be more effective than deliberate, teacher-centered instruction in helping children learn to read (see Chall, 2000, pp. 57-68). They discount or deny altogether the importance of phonics instruction, claiming that it is fraught with inconsistencies and that it displaces the more important goal of reading for meaning. Posing as post-modern theorists, some go further, arguing that teaching decoding is a fool's errand, since there really is no meaning to be decoded in the phonemes, morphemes, and syntax of English. According to these assumptions, deliberate attention to the teaching of particular skills should be de-emphasized or avoided entirely, and children's learning should be assessed only informally, by teachers' observations, not by standard measures (see Graves, Juel, & Graves, 2001, pp. 68-76).

In arguing on behalf of school practices informed by these assumptions, proponents of student-centered teaching see themselves as defending something larger than an approach to teaching reading. (Many of them, in fact, do not talk about teaching reading at all; they are engaged instead in "literacy education.") They believe they are asserting a more general philosophy of education — one validated by its superior measure of respect for the freedom and imagination of young children and for the autonomy of classroom teachers. In learning to read, children should learn that reading provides merely a context for a larger object of study that is "more alive and essential" (Hawkins, 1990, p. 9). The larger object of study includes all of the natural world ("this grand book, the universe, which stands completely open to our gaze") and various ideal images of the good society, to be glimpsed in a great universal library where, as John Donne once put it, "every booke shall lie open" (Hawkins, ibid.). Children should undertake such study without intrusive instruction, and teachers should participate as they see fit, not according to procedures implied by somebody else's research.

It is by contrast with this grandiose, self-congratulatory view of the teacher's task — a view that has in various formulations gained ascendancy steadily during the past 100 years in the United States (Chall, 2000, p. 58) — that Direct Instruction looks ugly to many reading specialists and classroom teachers. Not only does it concern itself merely with the small-bore goal of teaching reading. Worse yet, it implies a rebuke to the assumptions defining the exalted status the literacy educators have assigned themselves. It does not assume that reading is natural, or that the alphabetic principle can be attained merely by exposure to literature, or that context is the primary factor in word recognition, or that skill in decoding somehow stands in the way of thinking and imagining and living a good life — and yet despite this heterodoxy, children taught by Direct Instruction do learn to read, and to feel good about it in the bargain. If all that is true, the Direct Instruction people have jumped the gate, as it were; and if they have, perhaps the gate won't look so high after all. Better not to let that news get around. Better to take the Direct Instructors down a peg or two, before they attract widespread notice.

None of this is stated in so many words, of course. Public opposition, at least, is modulated by various qualifications. In the publications and web sites of the International Reading Association and the various state associations of reading educators, including the Wisconsin State Reading Association, one finds not opposition per se to Direct Instruction (or the teaching of phonemic awareness, or phonics). Instead critics voice their "concerns" about bandwagon movements, about the dangers of an improper emphasis on decoding skills, about the taint of "commercial interests" and the seeking of "corporate profits" by people who publish Direct Instruction materials, and about threats of "interference" in the form of "instructional mandates" that might be forthcoming from policy makers who lack a properly nuanced understanding of literacy education. Whole language literacy, by implication, never was a bandwagon movement; it never spawned any instructional imbalance; and it sprang into the world unassisted by the publishers who sold the whole language materials and the professors who advanced their careers by touting them.

But it does not take any subtle reading between the lines to discern a definite anti-Direct Instruction stance behind these equivocations. One Wisconsin State Reading Association web site, for example (http://www.wsra.org/ford.html), expresses "concern" about the role of Direct Instruction in the state's SAGE program and provides a set of overhead transparency masters for use by WSRA members in "informational meetings" at which Direct Instruction might be discussed. The overheads presuppose that their users will want to attack Direct Instruction, and they provide explicit coaching in how to launch the attacks by suggesting, for example, that the research base for Direct Instruction is outdated and that the long-term effects of Direct Instruction may include inducement to criminal behavior.

Why It Matters

In the realm of education policy we have grown accustomed to controversy over large issues of governance, school organization, and school finance. As against these issues, a controversy focused on practices in teaching reading might seem to be of little general interest — a squabble about day-to-day operations, marked by posturing among specialists and mind-numbing arguments over technical details. Furthermore, some would say, the teaching of reading does not amount to an urgent problem in Wisconsin. Wisconsin students have generally scored well on reading comprehension tests, especially as compared with students nationally. Ongoing improvement should of course be sought, according to this view, but the necessary steps can be taken within the general scope of existing practices.

But this complacent view is misleading, for at least two reasons. First, statewide averages may gloss over important local problems, while disaggregated profiles tell a different story. Statewide, for example, only seven percent of Wisconsin's fourth-graders scored below the basic level on the state's 1997-98 Knowledge and Concepts Examination for reading, but the low performers were not equally distributed among the state's school districts. In some districts (e.g., Whitefish Bay, at one percent below basic, or Mequon, at three percent below basic), scores were much better, and in others (e.g., Beloit, at 11 percent below basic, and Milwaukee, at 26 percent below basic) scores were considerably worse. One would expect some variation, of course, but large differences raise questions about the adequacy of current assumptions and practices.

Second, in the matter of reading achievement, the important question to raise is not whether achievement levels in the state seem to be impressive or unimpressive, according to recent comparisons; it is whether improvements in instruction could enable the state to do better, and at a lower cost. Wisconsin's current expenditures for teaching reading include large sums spent on remedial instruction. Children who struggle with reading make up a large share of all those who get slotted into special programs in the K-12 schools. And the special programs are expensive. If more children learned to read well in the early grades, the need for special, remedial programs would diminish, freeing up resources for other uses.

Direct Instruction provides an approach to teaching early reading that holds strong promise for enabling Wisconsin school districts to secure these improvements. We review published evidence for this claim in the following section.

The Research Base For Direct Instruction

Research concerning two related areas of interest has been aptly summarized by others: Rosenshine and Stevens (1986), on the generic direct instruction model; and Chall (2000), on the evolution of student-centered and teacher-centered approaches to teaching. The following review focuses more specifically on Engelmann's Direct Instruction model and applications of it.

Three Levels of Research on Direct Instruction

The Direct Instruction model developed by Siegfried Engelmann and his colleagues is supported by an impressive body of research that has accumulated over the last 25 years. The research base includes a variety of studies that address different questions and provide different types of evidence. The following review summarizes the findings according to Ellis and Fout's (1997) three-level framework for classifying and organizing research.

Level I research is basic research on learning which leads to a theory about learning. Although level I research is usually conducted in highly controlled, laboratory-like settings, educators may extract implications for classroom practice from it. Research conducted at levels II and III tests the instructional programs and practices derived from level I research. Level II research on direct instruction consists largely of small-scale pilot studies that test the effectiveness of particular programs (e.g., the *Reading Mastery* program) at particular grade levels (e.g., first and second grades) with particular student populations (e.g., special education or regular education students). Small-scale studies of this type should, and often do, precede broad, schoolwide implementations of the sort evaluated in level III research. The typical schoolwide implementation of Direct Instruction in elementary schools entails language instruction using the *Language for Learning* program, reading instruction using the *Reading Mastery* and/or *Corrective*

Reading programs, spelling instruction using the *Spelling Mastery* program, writing instruction using the *Reasoning and Writing* program, and mathematics instruction using the *Connecting Math Concepts* program.

At each of the three levels, research on Direct Instruction has been conducted variously, by means of qualitative as well as quantitative studies, and according to quasi-experimental as well as experimental research designs. Each type and level of research contributes in unique ways to the validation and ongoing development of the Direct Instruction model. Each also has limitations in respect to the conclusions that can be drawn from its results. Control over experimental variables (i.e., internal validity) is greater for the lower levels of research, while generalizability to the real world of classrooms and schools (i.e., external validity) is greater for the higher levels of research. That is why educators must look for a convergence of different levels and types of research over time to determine the overall efficacy of the Direct Instruction model.

The theory and principles of Direct Instruction derived from level I research are described in great detail in *Theory of Instruction* (Engelmann & Carnine, 1991). In *Research on Direct Instruction: 25 Years Beyond DISTAR*, Adams and Engelmann (1996) describe the 50-plus studies that comprise the body of level I research and explicate 24 studies comprising a body of level II research. Adams and Engelmann (1996) also devote two chapters to a report on level III research. These chapters focus on Project Follow Through, a large-scale educational experiment with disadvantaged students from 1967 to 1976, and on recent evaluations of Direct Instruction implementations in four states — Washington, Texas, Mississippi, and Utah.

Direct Instruction Research: Level I

Much of the formative research on Direct Instruction was conducted in the 1970s and 1980s. More than 50 level I studies provided detailed information about effective instructional practice, including how to select and sequence examples to show critical samenesses and differences, how to use precise and consistent wording to communicate relationships clearly, how to provide corrective feedback, how to pace lessons to maintain attention and increase correct responding, and how to organize content to facilitate retention and generalization. Direct Instruction programs were written to be consistent with the principles validated in those studies. The programs were then field tested, revised as indicated by the results of field testing, and published as commercial programs. Most of the early Direct Instruction programs (e.g., DISTAR language, reading, and math programs) have been revised several times over the years, and Engelmann and his colleagues have continued to write new programs (e.g., *Reasoning and Writing*, *Horizons*, *Corrective Reading*, *Language for Learning*, *Connecting Math Concepts*). All of the Direct Instruction programs to which we will refer in this report, whether early or recent, adhere to basic principles of instructional design derived from the substantial body of level I research.

Several level I studies of Direct Instruction challenged commonly held beliefs about the capacities of disadvantaged children and others who have tended to perform poorly in school. They did so by showing that scientifically validated teaching practices enabled these children (a) to acquire basic and higher-order skills at levels far beyond what is usually predicted for them, and (b) to generalize by applying what they learned to new and unfamiliar tasks.

Direct Instruction Research: Level II

In the most comprehensive and thorough review of research about Direct Instruction conducted to date, Adams and Engelmann (1996) identified 34 well-designed studies in which Direct Instruction interventions were compared to other instructional approaches. These 34 studies reported 173 comparisons, spanning the years from 1972 to 1996. Results from the comparisons showed (a) that 87 percent of the post-treatment means favored Direct Instruction, compared to only 12 percent favoring non-DI approaches; and (b) that 64 percent of the statistically significant outcomes favored Direct Instruction, compared to only 1 percent favoring non-direct approaches and 35 percent favoring neither.

Meta-analysis of data from the 34 studies yielded large effect sizes for Direct Instruction on a variety of measures. Large gains were reported for both regular and special education students, for elementary and secondary students, and for achievement in a variety of academic subjects (reading, math, spelling, social skills, health, science). The pattern of gains held, moreover, whether effects were measured by norm-referenced or criterion-referenced instruments, whether the research design was experimental or quasi-experimental, and whether studies lasted for less than or more than one year. The average effect size calculated for the 34 studies was .87; the average effect size cal-

culated for the 173 comparisons was .97. This means that, on average, gain scores for students in Direct Instruction groups averaged nearly a full standard deviation above those of students in the comparison groups. Effect sizes of this magnitude are rare in educational research.

While the 34 studies in question were summarized and analyzed by Adams and Engelmann (1996), neither Adams nor Englemann conducted any of the original research. Neither is listed anywhere among the 71 authors of the 34 studies. Furthermore, only 5 of the 71 researchers are co-authors of commercial Direct Instruction programs. Mindful of these facts, Ellis and Fouts (1997, pp. 223-224) considered the question of a possible conflict of interest among direct instruction researchers/authors and came to the following conclusion:

> we do not believe this [a conflict of interest] to be an issue for several reasons. First, there are ... other researchers who have studied D.I. who are not connected to its commercial aspects, and their findings are basically the same. Second, the research by prominent D.I. advocates is published in prestigious, peer-reviewed journals, an extremely important quality control point. Third, there has been no sustained or focused criticism that we could find that challenges the quality of the research.

Nonetheless, because Adams and Engelmann are known to be strong proponents of Direct Instruction, we wish to identify some of the independent reviews which have yielded findings and conclusions similar to theirs.

1. A 1988 meta-analysis of 25 studies that focused on special education populations showed large effect sizes for Direct Instruction, with no comparisons favoring the comparison group (White, 1988).
2. A 1997 integrative analysis of intervention programs for special education students found Direct Instruction to be one of only seven interventions showing strong evidence of effectiveness (Forness, Kavale, Blum, & Lloyd, 1997).
3. A 1997 meta-analysis of seven studies of the effects of Direct Instruction videodisc programs for teaching mathematics yielded average effect sizes of over 1.00 (Fischer & Tarver, 1997).
4. A 1997 *Current Practice Alert* sponsored by the Division for Learning Disabilities (DLD) and the Division for Research (DR) of the Council for Exceptional Children (CEC) states that a high level of effectiveness (for Direct Instruction) has been demonstrated by individual research studies, research reviews, and technical reports of informal studies (Tarver & DLD/DR, 1999).

Direct Instruction Research: Level III

Project Follow Through

This large-scale experiment evaluated the effects of different instructional models on the basic skills, cognitive skills, and affective skills of disadvantaged students in grades K–3. The models fell into two broad categories: those based on child-directed construction of meaning and knowledge (including a cognitive model and an affective teaching model) and those based on direct teaching of academic and cognitive skills. Direct Instruction was the major skills-oriented, teacher-directed model.

More than 70,000 students in 180 schools throughout the United States were involved in Project Follow Through. Students taught according to the different models were compared with a control group and with one another. Yearly data on 10,000 students were analyzed for the study. The analyses were conducted by researchers from two independent research organizations (ABT Associates and Stanford Research Associates). The results showed that the Direct Instruction model produced the highest student outcomes on all three types of measures — basic skills, academic skills, and affective skills (Stallings, 1975, and ABT Associates, 1977; see also Chall, 2000, p. 80).

In a critical discussion of this conclusion, House, Glass, & McLean (1978) contended that it didn't matter; other approaches to teaching reading should not be set aside merely because they produce weaker results than Direct Instruction. This recommendation to ignore the evidence prompted other researchers to reanalyze the Follow Through data. In the view that emerged from the subsequent studies, "D.I. looked even better" (Ellis & Fouts, 1997, p. 222). Students who had received Direct Instruction performed well not only on measures of basic skills but also in more advanced skills including reading comprehension and math problem-solving. Furthermore, scores for Direct Instruction students were quite high on various measures of affect, suggesting that building academic competence promotes self-esteem, not vice versa. Carnine (2000) summarized the Follow Through findings this way:

> In only one approach, the Direct Instruction (DI) model, were participating students near or at national norms in math and language and close to national norms in reading. Students in ... the other Follow Through

approaches — discovery learning, language experience, developmentally appropriate practices, and open education — often performed worse than the control group. This poor performance came in spite of tens of thousands of additional dollars provided for each classroom each year.

Project Follow Through has continued to attract attention. Ongoing studies of the Follow Through data, conducted by developers of the Direct Instruction model, have continued to disclose evidence of the model's effectiveness. For example:

1. Direct Instruction produced significant IQ gains for students who entered the intervention program with IQs below 71. The gains averaged 17 points for those entering in kindergarten and 9.4 points for those entering in first grade.
2. Direct Instruction produced lasting benefits. Follow-up studies of students who had participated in Project Follow Through in grades K–3 showed sustained effects as measured by achievement test scores, school attendance, and college acceptances (Gersten & Keating, 1987; Meyer, 1984).

School Evaluations Since Follow Through

Critics of Direct Instruction sometimes dismiss the evidence from Project Follow Through on the grounds that it is now more than 25 years old. The implication is that evidence from more recent research would point in a different direction. But, in fact, research continues to show strong, positive effects for Direct Instruction. To illustrate this point we summarize four evaluations (described by Adams & Englemann [1996]) below. (For a more general discussion elaborating the same points, see Chall, 2000.)

Seattle, Washington. In 1994, third graders who had attended a Direct Instruction preschool in either 1988 or 1989 were compared to third graders who had attended a different kind of preschool. The study included more than 4,000 third graders, 215 of whom had attended a direct instruction kindergarten. The Direct Instruction group was made up of 91 percent minority children, compared to minority populations of 65 percent and 52 percent for the two comparison groups. On the third-grade California Achievement Test, the Direct Instruction students performed at or above the 50th normal curve equivalent in reading, math, and language. In addition, as compared with the other children, children in the Direct Instruction group had (a) statistically significant higher reading scores; (b) higher percentages of students eligible for and enrolled in the gifted program; and (c) lower percentages of students retained, enrolled in special education, and enrolled in remedial classes.

Houston, Texas. Wesley Elementary School serves more than 1,100 students (grades K through 5), of whom 99.5 percent are from minority groups and 90 percent receive free or reduced-cost lunches. A Direct Instruction implementation began at Wesley in 1975, at a time when Wesley's third-graders generally scored more than a year below grade level on achievement tests. Between 1975 and 1986, scores on the Iowa Test of Basic Skills rose markedly. In 1980, Wesley's first-, second-, and third-graders graders scored above the 80th percentile in reading comprehension and vocabulary knowledge. In contrast, average percentiles for second- and third-graders in comparison groups fell below the 40th percentile. Moreover, the comparison schools' scores averaged 50 percentile points lower than Wesley's scores at all three grade levels.

Moss Point, Mississippi. Kreole Elementary School serves a student population that is 99.5 percent Black; the per capita funding level for Kreole is among the lowest in the United States. Kreole first introduced Direct Instruction in 1979, then dropped it in 1985, then reintroduced it in 1991 with the assistance of experts. During the periods in which Direct Instruction was not used, Kreole students scored at around the 20th percentile on various measures of achievement. During the self-implementation period, performance rose to the 43rd percentile for reading and the 34th percentile for language. Most importantly, following implementation of Direct Instruction with the assistance of experts, beginning in 1991, a 1994 evaluation showed performance at the 87th percentile for reading and the 79th percentile for language.

Accelerated Student Achievement Project (ASAP) in Utah. Three low-income Title I elementary schools (K–5) were involved in this project. In 1995–1996, Direct Instruction was implemented in all grades and all subjects. Title I and special education students were completely integrated such that the same instructional sequence accommodated all students. Evaluations at the end of the first year of implementation showed very large gains for the Direct Instruction subjects on the Stanford Achievement Test (SAT) and the Woodcock Johnson Reading Test (WJRT). For one of the schools, unprecedented SAT gains of about .66 standard deviation occurred for both basic skills and more advanced skills, with normal curve equivalent gains of 9.1 to 21.5 occurring for the different grades. For all of the kindergartens and two of the three first-grade classes, far more than 50 percent of the students scored in the highest ranges on the passage comprehension test of the WJRT (the 80–99 and the 60–79 percentile ranges).

Summary and Discussion

Direct Instruction has a strong research base confirming its positive effects on student learning. The supporting evidence arises from well-controlled experimental studies that validate the principles and theory underlying Direct Instruction. In addition, small-scale pilot studies have documented the effectiveness of particular Direct Instruction programs in various classroom settings, and comprehensive evaluations have demonstrated the effectiveness of Direct Instruction more generally across classrooms and schools.

It is not at all uncommon to find bits and pieces of evidence or testimonials for a wide range of initiatives in American education. But Direct Instruction is unique in the extent to which it is supported, amply, by different levels and types of research, converging over time to validate the theory, the component practices, and the model as a whole.

Educators in some circles — not necessarily those one might expect to show the most interest — continue to acknowledge these points. A recent report sponsored by five leading educational organizations (the American Association of School Administrators, the American Federation of Teachers, the National Association of Elementary School Principals, The National Association of Secondary School Principals, and the National Education Association), for example, highlighted Direct Instruction as uniquely effective (AIR, 1999). It was an endorsement based on work done by researchers at the American Institute of Research (AIR); they analyzed 24 schoolwide reform models and reported that Direct Instruction was one of only three that could present solid evidence of positive effects on student achievement.

Teacher Training And Direct Instruction

Evidence from research and professional experience shows that Direct Instruction is a powerful tool for helping children learn how to read. But among Wisconsin's leaders in reading education, many object strongly to the use of Direct Instruction. To what extent is this opposition reflected in the Wisconsin's teacher training programs? What do new teachers learn about Direct Instruction in their training programs, and what attitudes toward Direct Instruction do they develop as they move into their teaching careers? To find out, we conducted a survey of new teachers.

Method

The survey focused on teachers identified by the Wisconsin Department of Public Instruction as first-year teachers (as of the 2000-2001 academic year). From a list of 1,122 first-year, regular-education elementary school teachers provided by the DPI, we drew a random sample of 258 subjects (23 percent of the population). Eight of these 258 people returned their surveys, indicating that they were not in fact first-year teachers; omission of these eight people reduced the sample size to 250. A total of 108 teachers (43 percent of the sample) returned usable surveys. Our sample thus represented nearly 10 percent of the entire population of first-year teachers.

We wrote the survey instrument for the study (see Appendix). The survey is prefaced by a brief, explicit statement defining the sort of Direct Instruction in which we were interested. Of the subsequent questions, some assess attitudes toward Direct Instruction by means of Likert-scale items. Other items, in checklist form, ask subjects to provide information such as where in their teacher education programs they may have studied about direct instruction. Still other items call for simple "yes"or "no" responses.

We checked the survey instrument in a pilot study conducted with 31 Milwaukee-area teachers (who were not included in our sample). Based on suggestions from the pilot-study teachers, we revised survey items for improved clarity and completeness. Following these revisions, we mailed the survey instrument to our sample.

We analyzed survey data in two ways — first, by tallying responses and computing percentages; second, by running analysis of variance tests to check for significant differences among the teachers by type of college attended, grade taught, locality, or whether the teachers taught regular or exceptional education.

The Respondents

About 90 percent of the respondents were educated in Wisconsin. Seventy percent did their teacher training in one of the 13 University of Wisconsin System campuses. About 20 percent did their training at private colleges in Wisconsin. Most of the others attended public colleges or universities outside Wisconsin.

Nearly half of the respondents (49 percent) reported current teaching assignments in kindergarten or in grades 1, 2, or 3. Many respondents (44 percent) identified their school districts as urban; 36 percent reported teaching in a small city or town; 10 percent reported teaching in a rural district; and 9 percent reported teaching in a suburban district.

Results

- Emphasis on Direct Instruction in teacher-training programs. Slightly more than half (51 percent) of the respondents reported that they had not studied Direct Instruction at all in their training programs, while 49 percent reported some study of it. Of those who reported having studied Direct Instruction, nearly 70 percent reported that the emphasis was slight: "minimal," for 23 percent of the respondents, and "minor" for 46 percent. Of the 29 percent who reported a stronger emphasis on Direct Instruction, 17 percent described the emphasis as "important" and 12 percent described it as "a major emphasis."
- Curricular placement of Direct Instruction in teacher training programs. Among the 49 percent of our respondents who reported at least some studying about Direct Instruction, 65 percent said that their exposure to it came in a course on the teaching of reading, where (most of them said) they heard about it in a lecture. Surprisingly, however, slightly more than half (55 percent) of this same group said that they observed their cooperating teacher using Direct Instruction during student teaching, and 42 percent reported practicing Direct Instruction in a field experience or student teaching placement.
- Extent to which new teachers feel well-informed about Direct Instruction. Again, 51 percent of the respondents reported not having studied Direct Instruction at all in their teacher training programs. Of the 49 percent who reported some study of Direct Instruction, more than half (57 percent) said that they were now "poorly" or "slightly" informed about it. Only 8 percent reported that they were well-informed.
- Differences among respondents. No evidence suggested any significant differences in the study of Direct Instruction as such study might be associated with demographic categories. One-way analyses of variance indicated no significant difference in the mean number of those studying or learning about direct instruction as compared to type of college attended, grade taught, locality, or whether the teachers taught in regular or special education. Because we had small numbers of respondents in particular demographic categories, we did post-hoc analyses of variance regarding each of the individual categories, and here again we found no significant differences.
- Attitudes toward Direct Instruction. While most of the new teachers did not believe they were well-informed about Direct Instruction, about two-thirds of them reported holding positive attitudes toward it. Nearly four percent reported a strongly positive attitude, and 63.5 percent reported a generally positive attitude. Fewer than one-third (30.8 percent) reported a generally negative attitude, and none reported feeling strongly negative.

Conclusions and Discussion

Data from the survey yield two main conclusions. First, Direct Instruction received little emphasis in the professional training of new, first-year, regular-education elementary school teachers responding to our survey. Most of the new teachers had done no study of Direct Instruction at all, and those who reported some study of it nonetheless described themselves as poorly or slightly informed. Second, the new teachers who said they had learned something about Direct Instruction in their training programs apparently did so primarily through observation and practice in student teaching, guided by their cooperating teachers. Regarding on-campus coursework, a small subset of respondents (65 percent of fewer than half of the total sample) said that Direct Instruction had been a topic in some lectures.

These conclusions are noteworthy for several reasons. First, they call into serious question one of the claims most often made by teacher trainers about the importance of university-based teacher training. The claim is that universi-

ty-based training programs are critically important since they are uniquely well-suited for imparting training based solidly on theory and research, as opposed to the homespun nostrums and expedients that new teachers might otherwise have to fall back upon. Yet the theory and research base for Direct Instruction is for the most part excluded from teacher trainers' scope of reference, despite the fact that the relevant evidence has been disseminated widely and is easily accessible. The exclusion cannot be explained by a lack of time for the study of Direct Instruction in preservice programs. University-based training programs for elementary teachers devote large portions of time to coursework in the teaching of reading and language arts. At the University of Wisconsin-Milwaukee, for example, elementary education students complete at least nine credits of coursework on the teaching of reading and language arts; in this coursework and in other required, professional courses, there would be ample opportunity for careful attention to Direct Instruction if it were deemed a priority among teacher trainers. Nor can the exclusion be explained by a lack of interest on the part of new teachers. Once they are introduced to it, new teachers do show an interest in Direct Instruction, as evidenced by the generally favorable attitudes toward it reported by our subjects.

Second, the weak presence of Direct Instruction in teacher training programs suggests how very difficult it is to align university-based teacher training with public policy. Wisconsin Act 299, effective July 1, 1998, requires the inclusion of phonics in reading education training programs for students seeking teacher licensure for kindergarten to grade six. To ensure that new teachers meet this requirement, the Department of Public Instruction has codified it in a rule that is binding on teacher training programs throughout the state. According to the rule (PI34.15), training programs must address the use of

> appropriate instructional methods including phonics for licenses to teach reading and language arts to pupils in grades PK to 6. In this paragraph, "phonics" means a method of teaching beginners to read and pronounce words by learning the phonetic value of letters, letter groups and syllables.

As we have noted earlier, Direct Instruction is not the same thing as phonics. Phonics can be taught without Direct Instruction, and Direct Instruction can be used to teach other things besides phonics. But Direct Instruction programs for early reading focus explicitly and systematically on the relationships between letters and sounds in the English language — between the phonemes of oral English and how writing systems represent them. That is exactly what phonics instruction attempts to do (see Graves, Juell, & Graves, 2001, p. 156). In meeting their statutory obligation to include phonics in training programs, then, one might suppose that teacher trainers would avail themselves eagerly of the Direct Instruction example as a clear case. Our survey provides no evidence, however, that this sort of uptake has occurred. But then it is not clear what sort of uptake the DPI rule requires. Every teacher training program in the state would no doubt declare that its coursework focuses on "appropriate methods," and if a lecture or assigned reading addressed to one of the "appropriate methods" should happen to include a brief mention of phonics, then phonics is included and the DPI rule is satisfied, *de minimis*, as so many DPI rules are, even if nothing substantial has changed.

Taken together, these findings reinforce our sense that the Wisconsin's schools of education are mired in traditions of their own and are immensely difficult to change, even by means of state legislation and DPI regulations. Change is more likely to occur among educators who have a direct stake in K-12 students' learning and a stronger incentive, therefore, to explore alternatives to prevailing views. We turn next to a report on exploratory efforts of this sort, focusing on six Wisconsin schools in which teachers and principals in search of better results have turned to Direct Instruction.

A Look At Direct Instruction In Six Schools: Interviews And Observations

Critics of research in education often fault it as irrelevant to everyday classroom practice. The irrelevance arises, critics say, because much research is carried out under artificial conditions and because it often employs measures that do not capture the rich complexity of classroom experience. Those who assert these criticisms often call for greater attention to "local knowledge" — that is, to particular, descriptive accounts of classroom experience, rendered from the point of view of the teachers and the children. Accounts of this sort are needed, critics say, to transform abstract concepts and variables into images and stories by means of which the actual human interests implicit in a given project may be revealed and understood.

The research base for Direct Instruction is unusually strong and clear in its implications, we believe, and its face validity, as a skeptical practitioner might assess it, is enhanced by the fact that the main principles of Direct Instruction have been inferred from classroom practice, not conjured up *a priori*. Nonetheless, to educators who know

about Direct Instruction only by virtue of published research or textbook summaries, the principles in question may seem counter-intuitive, at best, and the teaching practices associated with those principles may seem off-putting. Scripts? Signals? Precise corrections? Isn't such a regimen dreary to contemplate? Doesn't it reduce teachers and students to automatons? If that's what teaching is, shouldn't we hand the task back to modestly educated schoolmarms armed with flashcards and hickory switches?

Mindful of these apprehensions, and eager to check our own reading and thinking against local knowledge, we visited six schools to learn about Direct Instruction as it is used locally. The schools included one in a small town, one in a Madison-area suburb, one in a Milwaukee-area suburb, and three in the Milwaukee Public Schools:

- Lodi Primary School, Lodi
- The Core Knowledge Charter School, Verona
- Indian Hill Elementary School, Mapledale Indian Hill
- Gaeslen Elementary School, Milwaukee
- 27th Street School, Milwaukee
- Dover Street School, Milwaukee

We selected these six schools because their Direct Instruction initiatives have been sustained for some time and because they serve a diverse set of communities and student populations.

Direct Instruction programs used in these schools include *Reading Mastery*, *Language for Learning*, *Reasoning and Writing*, *Spelling Mastery*, *Corrective Reading*, and *Expressive Writing*. In some schools the use of these Direct Instruction programs is complemented by work with other reading and language arts instructional materials.

At each site, we observed instruction in several regular-education classes and interviewed regular-education teachers, reading specialists, and school administrators, beginning with a prepared set of questions and following the discussion as it ensued. We summarize these visits below, beginning with the interviews.

The Interviews

1. How did you get started using Direct Instruction?

The start-up agents in most cases were classroom teachers — led, often, by a highly motivated individual teacher. But principals were typically supportive of these efforts, and in two schools, principals also played a lead role in start-up activity. In telling how they got started, teachers emphasized beginning from a point of dissatisfaction. They were dissatisfied with previous approaches to teaching early reading and dissatisfied with the tendency among some of their colleagues to explain away poor results by blaming poverty and parents. Typical comments included "the kids were low in reading," "as kids moved on to middle school they weren't doing well," "we had four reading specialists in the building and the kids were still failing," "we couldn't keep doing what we were doing — we were failing," and "we had tried several programs — 'look-say,' 'context clues,' all of it — but none of that worked."

In this mood of dissatisfaction, teachers and principals settled upon Direct Instruction deliberately in some cases (e.g., by reference to preservice training one teacher had received in Direct Instruction from an exceptional education course) and by informal, word-of-mouth influences in other cases. One teacher heard about Direct Instruction from a teacher at a different school in her district; another heard about it from a friend who worked in Florida. Beginning from informal leads of this sort, a few teachers (typically) would make a small start, arranging for in-service training in Direct Instruction, then implementing a particular Direct Instruction program, sometimes focusing initially on a particular group of students. Implementation in one case required formal negotiations between an experienced principal who backed the use of Direct Instruction and a superintendent who initially opposed the principal's plan but agreed eventually to permit a three-year pilot project. (The pilot project was successful, and the superintendent today is a backer of Direct Instruction. His district's experience, he says, shows that Direct Instruction should not be regarded as a program suitable only for deprived children struggling to learn basic skills.)

Implementation efforts expanded, ordinarily, as evidence of positive effects became apparent to teachers not involved at the outset. "When other teachers saw the results," one of the early implementers told us, "they wanted in, too." The results in question included observed effects on children's decoding, comprehension skills, and attitudes toward reading, but they also included beneficial effects for teachers. Some felt that in learning to use Direct Instruction they had learned for the first time how to do the work they had been hired to do. In this vein, speaking of

her preservice training, one beginning teacher stated that "we were never taught *how* to teach a beginner how to read. We learned a lot about *response* activities for kids in upper levels, but I didn't know how you got kids who couldn't read at all up to those levels. Now I can say, 'I *taught* these children to read.'" The snowball effect generated by favorable outcomes for students and teachers led in some schools to formal faculty votes on motions to extend Direct Instruction initiatives, followed in turn by school board approvals and school-wide adoptions of Direct Instruction.

2. What Direct Instruction training or staff development activities have you participated in?

Competent use of Direct Instruction requires adequate training. All the teachers and principals with whom we spoke emphasized this point. "There is a learning curve for teachers when they get started on Direct Instruction," one experienced teacher told us. "They get *better* at it over two or three years. They internalize the idea and then use it fluently and with personal style." "It needs lots of training," another said, "initially and then the follow-through. If you're serious about this, it is essential to get training from a real DI specialist." To obtain the necessary training, teachers and principals with whom we spoke followed several paths. Some teachers attended seminars conducted by SRA, the publisher of *Reading Mastery* and other Direct Instruction programs. Some attended sessions at an annual summer conference on Direct Instruction at UW-Madison. Some traveled to the University of Oregon to study Direct Instruction there, while others obtained district support to import consultants from the University of Oregon and other out-of-state sources. Some participated in inservice training sessions focused on Direct Instruction, with instruction provided by hired consultants and by colleagues.

In obtaining help from these various sources, some teachers and principals were able to rely in a straightforward way on opportunities for staff development provided within their district. Others emphasized the need for entrepreneurial resourcefulness and a measure of subterfuge in order to pull together the money needed and to get around district-level resistance to Direct Instruction. "MPS [the Milwaukee Public Schools] did have a Direct Instruction staff development course," one teacher told us, "but only for ex ed [exceptional education teachers]. This is part of the stigma attaching to Direct Instruction. It's not for POKs [plain old kids]."

3. What results are you seeing?

The teachers and principals with whom we spoke reported strong, positive results from Direct Instruction, in reading achievement and in other areas. In a suburban school, "intervention" children (i.e., children who are behind in reading) and others showed strong improvements on the state's third-grade test of reading, with more than 90 percent attaining "proficient" or "advanced" scores. A Milwaukee school (the 27th Street School) registered the highest schoolwide increase (from 1997 to 1999/00, on Wisconsin's fourth-grade Knowledge and Concepts exam) in the district, with a jump from 23 percent to 72 percent in children reading at the "proficient" level or higher.

Teachers and principals in these schools (and the others) clearly take pride in gains of this sort, but — and we emphasize this point because it stands at odds with the view that teachers may have been bullied into using Direct Instruction by the specter of testing — *Direct Instruction teachers do not appear to be preoccupied with test-score gains*. They speak with equal or greater enthusiasm about other indications of students' learning, based on their own classroom observations. And the improvements they see extend beyond decoding skills to include, for example, expository writing, story mapping, sequencing of information, the capacity to focus and sustain effort, appropriate classroom behavior, and positive attitudes toward reading. One second-grade teacher, in fact, didn't care to talk to us about reading at all; she was more impressed by improvements she had seen in her students' writing, which she attributed to the thoughtful written work required of them in their Direct Instruction workbooks. Echoing this view, a third-grade MPS teacher reported that a Direct Instruction program (*Reasoning and Writing*) she used enabled her students to perform well on sophisticated writing and thinking tasks, including locating topic sentences in their reading and composing topic sentences in their own writing.

Teachers and principals were especially emphatic in describing attitudinal effects. Learning to read by Direct Instruction, they said, put children at ease and freed them up, emotionally and intellectually, to work independently and to enjoy their work. "They are always working at their own levels," one teacher said, "so they see success and avoid frustration. This affects their whole attitude toward school." "They can figure it [a given text] out for themselves," another said, "and they like it; it's a wonderful thing to see." An MPS kindergarten teacher using Direct Instruction said, "My children see their success. They want to show that they can do it. They *ask* to read."

In four schools, teachers and principals also said that Direct Instruction had had an impact on retention and special education referral rates. They were retaining fewer children and referring fewer children for special education, and they attributed the change to improved learning brought about by Direct Instruction. For the most part we were not able to obtain particular evidence, over and above the statements of attribution, about this matter. One MPS

school, however, did tally retentions over the period 1996-2000. (This school implemented its Direct Instruction reading program for all students in 1997-98.) The tallies show an 80 percent decrease in retentions from1997-98 to 1999-2000. The decrease cannot be explained by reference to changes in the school's retention policies; no retention policy changes occurred during the time in question. The decrease seems therefore to corroborate the teachers' view that Direct Instruction reduced the need for retentions.

4. How have parents reacted to Direct Instruction?

Parents and school-board members in some Wisconsin school districts have resisted the introduction of Direct Instruction (see Hetzner, 2000). But parents served by the six schools we visited have been pleased by Direct Instruction programs, according to principals' and teachers' reports. The Core Knowledge school in Verona is a charter school, and a parental push for Direct Instruction was instrumental in persuading the district there to support the charter. Continued strong enrollments at this charter school demonstrate ongoing parental support. At the other five schools, principals and teachers described parental support. "Parents really like it," one principal said, adding that "of course, we've worked hard to keep them informed at every step." In explaining the parents' view, teachers emphasized parents' pleasure in seeing their children learn to read. "They cannot believe what they see their little five-year-olds doing at home," one kindergarten teacher said; "they are very excited about this." An MPS parent-liaison specialist stated, similarly, that parents "were concerned early. Now they love it. They see their kids moving forward. They like the personal quality of the program — the personal attention for their kids."

5. Have you encountered any opposition to your Direct Instruction programs?

In two schools, the response here was simply "no." Teachers and principals in the other schools reported various forms of resistance or opposition. As noted earlier, a district administrator initially opposed the introduction of Direct Instruction in one of the suburban schools we visited, agreeing to permit a pilot project only because of his respect for the principal who requested it. In the same district, some teachers also balked. "When we first started this," a teacher there said, "[other] teachers thought Direct Instruction was nuts. They were into whole language. It was a hard sell, but finally they couldn't argue with the results."

MPS teachers and principals report passive and active resistance from district-level staff members. "The district hasn't hindered this," one MPS teacher stated, "but it hasn't made any effort to support us, either." Other MPS teachers and principals spoke of outright resistance, emanating in part from a sense of rivalry between the district's Target Teach program and the Direct Instruction initiatives now underway. "They [the Target Teach administrators] despise Direct Instruction. They have sunk a ton of money into Target Teach, and our teachers never use it. So they all fight Direct Instruction. We don't care. We ignore them." An MPS reading resource teacher stated that MPS is "very anti-Direct Instruction." This teacher ran into persistent difficulties in getting approvals for purchases of Direct Instruction materials. At this teacher's school, another teacher spoke of MPS rules that were invoked to deny permission for a Direct Instruction training workshop, to be conducted at an MPS site by a consultant from Chicago. In that case the school staff handled the problem by shifting the workshop to a non-MPS site. MPS teachers also spoke of resistance from University of Wisconsin-Milwaukee teacher trainers, identifying UW-M staff members who strive not to place student teachers with cooperating teachers who use Direct Instruction. In fact, however, some UW-M student teachers do get placed with Direct Instruction teachers, and, as our survey data suggest, those who learn about Direct Instruction from their cooperating teachers tend to like what they see.

Teachers and principals from MPS and elsewhere spoke bitterly about the Wisconsin State Reading Association, claiming that its officers misrepresent Direct Instruction on their web site materials, in their publications, and in presentations they make to school groups in order to dissuade them from introducing Direct Instruction programs.

6. Apart from opposition, what implementation problems have you encountered?

Responses here referred mainly to ongoing training needs, the cost of training, and the cost of Direct Instruction materials.

At a suburban school where the staff seems to be strongly committed to Direct Instruction, a senior teacher who had led the Direct Instruction initiative there spoke of "a lingering sense" felt by some others that Direct instruction is "slow, repetitive, and boring." In reporting this, she emphasized the unstated point in this complaint — i.e., that these teachers found Direct Instruction slow and boring *for themselves — for adults*. But the program "isn't for them," she said, "it's for the kids, obviously, and *the kids aren't bored* by Direct Instruction. We just need to keep pressing this point in our training, making it clear that there's a reason for everything in these lessons."

The cost problems had to do with purchasing instructional materials and paying for training. Depending on the program in question, instructional materials include the students' reading texts, workbooks, and teachers' guides. The start-up packages, teachers and principals say, are as expensive as, or somewhat more expensive than, comparable packages of non-Direct Instruction materials. Except for the workbooks, of course, the materials are reusable. To hold costs down, some schools cut back on workbooks, using them only in some of their Direct Instruction programs. Training costs are ongoing — for regularly scheduled staff development and for additional, on-site coaching. To provide this coaching the schools we visited rely to some extent on in-house expertise. One of them employs a full-time teacher, with extensive training in Direct Instruction, who is released from teaching so that she can work exclusively on helping other teachers in her building. But most schools also use consultants who visit classrooms regularly, coaching individual teachers via demonstrations and post-lesson discussions. Principals scramble to find money for this coaching, drawing upon funds from a potpourri of special programs.

7. Critics say Direct Instruction reduces teaching to a dull, trivial routine. What is your response to that?

Responses here typically began with an acknowledgment that Direct Instruction takes some getting used to. It strikes teachers early on as highly structured, repetitive, and slow (lesson *pacing* is brisk in Direct Instruction, but teachers do not move on to new skills until children master prior skills). "At first I did feel a little like a robot," one teacher said. From these responses teachers typically moved on to say that this early sense of stiffness and awkwardness abated as they became more skillful in using Direct Instruction. "This involved a real effort to learn," another teacher stated, "so I guess I shouldn't have felt surprised — that it seemed hard at first. That is what I tell my own students about new learning all the time." As they gained in fluency and confidence, teachers said, they could shift their attention more to the effects of their work on their students. They spoke then of feeling energized by their students' engagement and success in learning. If students could learn to decode, they could learn other things, too: "I saw them get into it [decoding text] really quickly, you know, and then I thought 'hey — now I can get to comprehension and all the good stuff.' And it's fun to think about moving on that way."

Teachers spoke also of their own increased understanding as a factor bearing on their attitudes toward Direct Instruction. The use of scripts and signals seems "Mickey Mouse at first," one principal said — "not at all the sort of creative, free-flowing thing teachers dream of." But, she continued, it matters a great deal when teachers become conscious of the reasons for the Direct Instruction routines. "Choral responses," for example, "make it easy for all the kids in a group to respond, not just the ones who like to talk all the time. And scripted instruction actually reduces teacher talk. So the routines aren't 'mindless' at all. Just the opposite." Similarly, regarding the high level of structure built into Direct Instruction lessons, a teacher of reading stated, "we *want* these lessons to be teacher-directed. That's the point of it. If what we do is teacher-directed, then *we're* the ones responsible for the kids' learning, and we're supposed to be, aren't we?" In reference to a particular criticism he had heard at a professional meeting — that Direct Instruction engages children merely in "word calling" — another teacher wondered what made word-calling a bad thing. "Bad compared to what?" he asked rhetorically. "Compared to *not being able* to 'call' the word? That's what I used to see in my third-grade classes — kids who still couldn't 'call' words after two years in school. Or do anything else with them either." These remarks reveal a capacity for analysis based on competence and understanding, in contrast to the reflexive posturing that very often characterizes discussions of Direct Instruction.

8. What's next in your Direct Instruction effort?

Responses here reflected the pragmatic tendency implicit in the six Direct Instruction initiatives generally. Teachers and principals spoke of various modifications and new efforts aimed at shaping Direct Instruction in an ongoing way to their needs. At one suburban school, the development will include shifting an early Direct Instruction program from grade one down to the kindergarten level, continuing to emphasize Direct Instruction for "intervention" classes, and augmenting Direct Instruction generally by use of a basal series "that does a good job with phonics, if we can find one." Teachers at a small-town school also planned to shift an early program down to their kindergarten classes. In both cases, teachers explained this shift to an earlier start by emphasizing the importance of early success rather than catch-up work later. At one MPS school the development plan calls for retaining Direct Instruction in the lower grades ("to sustain the gains we've made") and expanding its uses in the middle-school grades, with a strong emphasis there on literature. At another MPS school, teachers plan to implement a Direct Instruction spelling program. These teachers also are interested in a Direct Instruction program for mathematics, about which they have heard good things from colleagues elsewhere, but they believe they are "stuck with [a different math program called] Investigations" for the next few years. Nobody in the six schools spoke of having made a mistake in turning to Direct Instruction. Nobody spoke of turning back.

The Classroom Observations

In our opening description of Direct Instruction, we summarized the main features of the teaching model developed by Seigfried Engelmann and incorporated in several commercially published instructional programs, many of which are in use in the schools we visited. Our purpose here is not to review those features systematically by reference to our observations in the six schools. Instead we want to draw upon our observations to try to say *how Direct Instruction looked — what sort of thing it seemed to be* — in a small set of local exemplars.

We found, first, that one could not identify a Direct Instruction school or classroom by its appearance. The schools and classrooms we visited were a varied lot: old and new, spacious and crowded, attractively decorated and institutionally plain. They looked simply like elementary schools and elementary school classrooms.

Nor could one have identified a Direct Instruction teacher in these schools by any immediately discernible characteristics. The teachers whose work we observed were beginners and veterans, males and females, African American and white, quiet and voluble, spiffy and not so spiffy. Some of them joshed with their students, and with us, before beginning a lesson (show-and-tell, we can report, is alive and well in at least some Direct Instruction schools); others did without such preliminaries and got right to work.

But in the lessons that ensued, we were struck repeatedly by a pervasive quality shown in the work of the teachers and the students. It had to do with focus, intensity, orderly progression, and overt signs of successful learning. The intellectual focus (on distinguishing between a letter name and a sound, for example) was invariably clear, and it was enhanced by the physical arrangement used by most Direct Instruction teachers in their small-group activity: six to eight students seated in a semi-circle, up close to a seated teacher who faces them. In such an arrangement the teachers and students could literally see eye to eye. The teachers could see what each student was doing; they could maintain eye contact with the students and make purposeful uses of smiles, raised eyebrows, and other facial expressions; and they could speak to students in an ordinary, conversational tone. We heard none of the militaristic barking some observers have claimed to find as a hallmark of Direct Instruction.

While the interpersonal tone in these arrangements was typically pleasant and comfortable, the teachers and the children working within them typically showed intense engagement. They were *on*. Teachers moved lessons forward, sustaining students' participation in an interactive pattern organized by cues and questions, praise and corrections, all at a lively pace. There was no down time. Students participated eagerly, often volunteering to read and sometimes getting started with a lesson in their groups before the teacher was ready to begin. This is not uncommon, teachers told us; lesson sequencing is sufficiently clear that students can anticipate next steps, and they look forward to them. "They want to read." Students maintained their focus as lessons progressed, apparently without difficulty. "I've changed my thinking about the idea that children have short attention spans," one second-grade teacher told us. Students listened attentively while other children read, sometimes offering advice. We watched while one child stumbled in trying to read "rut." The others squirmed, pulling for him. "Sound it out," the student next to him finally said, sotto voce. He did, and got it right, and the lesson moved on.

Students in the lessons we observed caused very few problems for their teachers or classmates. It is no exaggeration to say that they were too engaged in reading to take time for fooling around. When we asked about this, teachers told us that their behavior problems had been reduced nearly to zero in Direct Instruction classes. They attributed this to the structure of the programs and to the sense children get through their participation that they are learning to read. Our observations could not verify that claim as a generalization, but it was evident to us — through the children's intense concentration, their sustained effort, their eagerness to get things right and make lessons go well — that the students we observed were kept on course and impelled strongly by a sense of satisfaction arising from their achievements.

Not all the classes we observed looked alike, and not all teachers were equally skillful in using Direct Instruction. Some teachers clearly had internalized the Direct Instruction routines so that they could use them easily, almost as if their relationship with the children was unmediated by any method. That was not the case, of course; the method had merely become transparent. These teachers were the ones most likely to be animated, lively, and (it seemed to us) effective in their interaction with students. We saw no teachers who looked unsuccessful, but some were more hesitant and awkward than others in using lesson scripts, less attentive to physical arrangements, less lively in interaction with their students, less clear in their cueing and signaling practices, and less adept in giving praise and making corrections. In classes conducted by these teachers, the students, in turn, were less forthcoming in their participation.

We mention these variations in teachers' skills in order to underscore a point made earlier about the learning curve involved in teachers' mastery of Direct Instruction. Direct Instruction is not by any means a "teacher-proof" method of teaching. For teachers coming at it anew, it requires substantial new learning and practice. We saw clear evidence of this in an observation we made of an MPS teacher who was relatively new to Direct Instruction. As she struggled with a lesson, her students were somewhat subdued. Two of them slumped with their heads on the table top, unwilling to participate. In the classroom at the same time there was a Direct Instruction consultant, employed by the school to coach teachers. The consultant asked permission to step in, and then she took over the class. She immediately moved back to an earlier point in the lesson, aware that the lesson had gotten off to a bad start. She refocused the lesson and picked up the pace. With no use of the printed script as a prop, she moved things along easily, drawing children in with cues and precisely stated questions. It was, literally, hands-on teaching; she moved about the group, touching some children softly on the head or shoulder to redirect their attention and encourage them. She praised students as they began to participate, and she pressed on with efforts to engage the others. Her manner was personal, pointed, and insistent, and it transformed the lesson. It left the children smiling and looking around at one another, feeling that they had done a good job. At its best, this is the potential of Direct Instruction; it leaves teachers and students feeling that effort and purposeful action lead to good results.

The Interviews and Observations: A Summary

- In the six schools we visited, Direct Instruction was not "imposed" by top-down mandates. It arose from efforts led by teachers and principals. These efforts, in turn, grew out of dissatisfaction: the teachers and principals in question turned away from other approaches to teaching reading in a pragmatic search for something better.
- Implementation of Direct Instruction began, typically, on a small scale and expanded as more teachers in a given school took notice of its effects. Implementation varied from school to school, however, as teachers decided which Direct Instruction programs to use, how to handle training needs, and so on.
- Teachers and principals in the six schools reported strong, positive effects from their uses of Direct Instruction, for regular-education students as well as special-education students, in reading decoding, reading comprehension, and attitudes toward reading. Some teachers also emphasized other effects, including improved writing skills, improved capacity to focus and sustain effort, and, generally, improved student behavior.
- Teachers reported no evidence of the various negative effects critics have remarked upon in their attacks on Direct Instruction, and we observed no such negative effects. We saw spunky, animated children learning to read in markedly comfortable classroom environments. In small-town, suburban, and city schools, we saw children reading fluently, with evident pride in their ability.
- The six schools varied in the number of Direct Instruction programs they used, the number of grade levels in which they used them, and the amount of training they provided in support of Direct Instruction. Variation of this sort is most likely to be found in other Direct Instruction schools as well. Thus, any comprehensive, statewide evaluation of the effects of Direct Instruction would need to control carefully for these variables.

The Costs Of Remedial Instruction

The costs of remedial instruction have begun to draw national attention. A recent report from Michigan shows that more than one-third of Michigan students leave high school without having attained basic skills in reading, writing, and mathematics. Greene (2000) estimates that this high level of failure costs Michigan — in remedial programs and other responses — somewhere between $311 million and $1.15 billion per year. His best estimate, taking account of five different analyses of the cost, puts the figure at $601 million per year. By extrapolation from this figure, Greene estimates that the cost of remedial instruction nationwide is $16.6 billion per year. How does Wisconsin stand in this matter? When early instruction proves ineffective and educators seek to make up for it later by means of remedial instruction, what are the costs?

Total Per-Pupil Costs Trend Upward in Wisconsin

As a first step toward answering the question about costs, we looked at total per-pupil costs for instruction in Wisconsin, as compared to changes in K-12 enrollments and changes in reading achievement scores. Table 1 shows a K-12 enrollment increase of 8.1 percent from 1991-92 to 1997-98. During this same period, per-pupil spending in Wisconsin increased by 11.6 percent, in inflation-adjusted dollars. And at the same time Wisconsin students' performance in reading, as measured by the National Assessment of Educational Progress, remained unchanged. In other words, total per-pupil spending has outpaced enrollment increases, while reading scores (high, according to nationwide comparisons) have remained flat. Figures 1 and 2 illustrate these facts.

FIGURE 1 CHANGES IN PER-PUPIL COSTS, 1991-1998

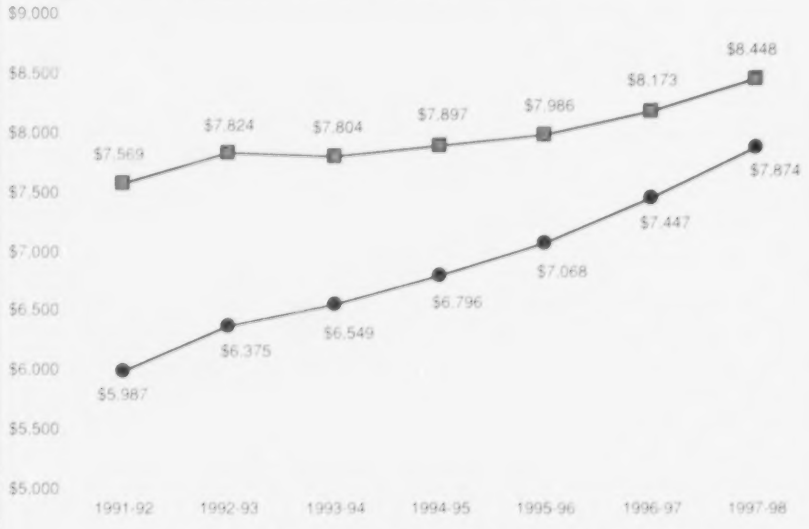

FIGURE 2 CHANGES IN GRADE 4 AVERAGE SCALE READING SCORES, 1991-1998

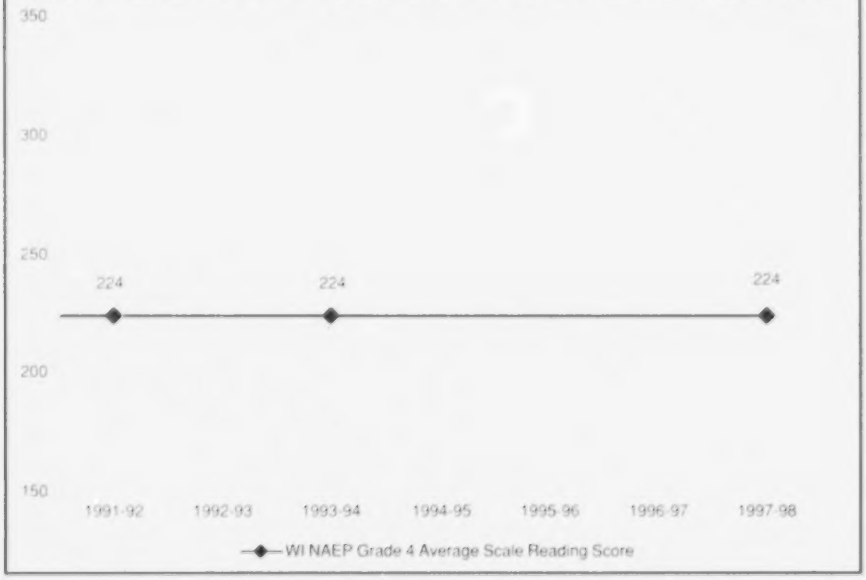

TABLE 1 PER-PUPIL COSTS, ENROLLMENTS, AND READING ACHIEVEMENT SCORES, 1991-1998

Year	Student Enrollment	Cost Per-Pupil Actual Dollars	Cost Per-Pupil Inflation-Adjusted 2000 Dollars	WI NAEP Grade 4 Average Scale Reading Score
1991-92	814,671	5,987	7,569	224
1992-93	829,414	6,375	7,824	
1993-94	844,001	6,549	7,804	224
1994-95	860,581	6,796	7,897	
1995-96	870,175	7,068	7,986	
1996-97	879,149	7,447	8,173	
1997-98	881,248	7,874	8,448	224
Percentage Increase	8.1%	31.5%	11.6%	0%

Sources: Wisconsin Legislative Reference Bureau; Wisconsin 1999-2000 Blue Book; Joint Committee on Legislative Organization

Remedial Programs Trend Upward in Wisconsin

Total costs for instruction reflect the state's heavy investment in remediation. "Remediation" here refers to more than special help for children suffering from profound physical or cognitive disability. The Department of Public Instruction reports that 20-30 percent of Wisconsin students in grades 4, 8, and 10 do not score at the *proficient* or *advanced* level on state reading tests. As school districts seek to move more students into the *proficient* and *advanced* categories, they make use of various remedial programs. To indicate the broad scope of this effort, we list below some of the most important remedial programs.

- Many of Wisconsin's students who do not read well are referred for special education and ultimately are determined to have a disability. Special education enrollments have climbed steadily in recent years. The number of students identified as Learning Disabled increased from 38,516 in FY 1992-93 to 46,828 in FY 1997-98; that is an increase of 21.6 percent, and it occurred at a time when total public school enrollments increased by only 6.3 percent. In FY 1997-98, the average per-pupil cost of educating a Wisconsin student in regular education was $4,580; at the same time the average cost for a student enrolled in special education was $7,627. In FY 1997-98, total special education funding for Wisconsin school districts came to $863 million. (Legislative Audit Bureau, 1999).
- Title I is a federally funded program that is administered by the states. Title I legislation is designed to improve the teaching and learning of children in high-poverty schools who are performing below grade level. Schools using Title I funds are granted flexibility for determining how to use them. Funds may be used for school-wide programs, targeted assistance, preschool programs, and programs to foster parental involvement and professional development. In fiscal year 2000-2001, Title I allocations for Wisconsin totaled about $124 million.
- Wisconsin's Student Achievement Guarantee in Education (SAGE) program came into effect in 1996-1997, initially serving 30 schools. Designed to help low-income students improve their performance in mathematics and reading, SAGE enables participating schools to reduce class size to 15 students per teacher in grades K-3. The SAGE program has grown rapidly; more than 500 schools are currently involved. In the 2000-2001 school year, Wisconsin will spend approximately $58 million on SAGE while receiving $22 million in aid from the federal government's class-size reduction program.
- Reading Recovery is a program designed to help children become independent readers and writers early in school. Children meet individually with a specially trained teacher for 30 minutes each day for an average of 12-20 weeks. The goals are for the children to develop strategies for effective reading and writing. The Reading

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Recovery web site reports that school districts estimate costs per child to range between $2,300 and $3,500. A 1998-1999 report from Wisconsin Reading Recovery shows that the number of all children served in Wisconsin was 2,441. Assuming that the program's reported costs provide an accurate base for extrapolation, we estimate that Reading Recovery program activity to date has cost $5.6 million to $8.5 million in Wisconsin.

- Reading Evaluation and Demonstration of Success (READS). This is a statewide demonstration program intended to show how effective programs can improve reading achievement and reduce special education referrals. For the 2000-2001 school year, $1.5 million of federal discretionary monies were allocated by the Department of Public Instruction to fund this initiative in Wisconsin.
- Target Teach is a reading program used in the Milwaukee Public Schools. It is based on the assumption that poor performance in reading reflects a failure by teachers to align what is taught with what is tested. Target Teach is funded out of Title I revenue. In its first year of operation in Milwaukee, Target Teach costs (including start-up costs for the purchase of materials and for training) totaled about $750,000, for 25 participating schools. In the second and third years, with nine additional schools participating, continuation costs were about $250,000 per year. Total program costs for the first three years were about $1,250,000.

  Target Teach became implicated in a controversy related to Direct Instruction when Evans Newton Incorporated (the publisher of Target Teach) conducted a study to determine how well Wisconsin's state reading examinations aligned with the objectives of several reading programs used in MPS. One finding of this study (Evans Newton Incorporated, 1998) was that the SRA *Reading Mastery* program — a Direct Instruction program — aligns poorly with the Wisconsin Reading Comprehension Test. This finding was taken by some MPS educators to mean that Direct Instruction per se precluded alignment with state reading tests and should therefore be rejected in MPS schools. That interpretation was immediately contested by other MPS educators who pointed out that the study in question had been based only on the *Reading Mastery* program for grades 1 and 2, and that objectives emphasized in subsequent Direct Instruction reading programs, including the SRA *Horizons Fast Track C-D*, had been ignored. Hard feelings related to this controversy continue to surface among MPS teachers and principals who believe that the Direct Instruction programs they have implemented were misrepresented by this alignment study and the interpretations some MPS educators made of it.

This is not an exhaustive list. Other special efforts — including enhanced summer school offerings, tutoring, academic study halls, and increased hiring of reading specialists for staff slots in elementary and middle schools — also are undertaken primarily to improve students' reading skills.

The Role Played by Special Education in These Trends

As total K-12 instruction costs and remedial instruction efforts trend upward, it seems clear that the trends are related. But the direct costs of remedial instruction, as they relate specifically to reading, are difficult to isolate. First, there is a danger of double or triple counting among the various funding sources involved. For example, Title I funds might be used to support a SAGE school, which might also be using the Reading Recovery program. Second, schools vary in how they classify cost outlays for research, training, purchasing, assessments, and so forth.

In light of these problems we have focused on one aspect of the overall remedial effort: special education and, particularly, the potential for over-identification of students for placement in learning-disabled (LD) programs. Heavy state spending for special education suggests that it stands at the center of the remedial effort and can serve, therefore, as the basis for a low-end estimate of remedial costs more generally. It is, moreover, an area of program activity about which we have reliable information. In the summary remarks and the cost estimates that follow, we rely on information from Wisconsin's Legislative Audit Bureau. Its report titled *An Evaluation: Special Education Funding* (1999) provides an informed analysis of many special education issues in Wisconsin, including costs.

As special education enrollments have increased in Wisconsin over the past few years, the rate of increase has been especially high in students classified as learning disabled (LD). The LD category is the largest single category of disability recognized in special education. It accounts for 45.9 percent of Wisconsin's total increase in special education enrollments from FY 1992 through FY 1997-98. LD placements also accounted for 41.4 percent of special education re-enrollments in FY 1997-1998.

Among educators it is well-known that no exact science informs decisions about special education placements, particularly placements for learning disabilities. Neighboring Wisconsin school districts serving similar student pop-

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ulations often differ considerably in the percentages of students identified for the LD category (see Van de Kamp Nohl, 1996). Wisconsin's Legislative Audit Bureau (1999) discusses several reasons for such inconsistencies. First, the Audit Bureau points to insufficient definitions in state and federal law regarding the disabilities in question. Second, the Audit Bureau notes that teams authorized to evaluate students may vary (in their composition and in their understanding of the task assigned to them, for example) from school to school and district to district, such that similar cases may be handled differently. Third, the Audit Bureau notes that evaluation teams may recommend special education services for some students merely because these students are not doing well in school and because the school has no suitable alternative for them in its regular education programs. In such cases, the legal requirement of a disability criterion is set aside in a de facto expansion of the special education idea, creating a catchall, expedient approach to problems for which the school otherwise would seem to have no institutional response.

As schools sweep more and more students into learning disabilities programs because they do not know what else to do with them, not all schoolchildren are affected equally. In Wisconsin and nationwide, placement in special education befalls male students and African American students disproportionately. In FY 1997-98, males represented 51.4 percent of the Wisconsin's public school enrollments, but they accounted for 68 percent of Wisconsin's special education enrollments. In the three largest disability categories (learning disabled, speech or language impaired, and seriously emotionally disturbed), males represented 70 percent of all enrollments. In Wisconsin, African American students accounted for 9.8 percent of (FY 1997-98) public school enrollments and 12.3 percent of special education enrollments.

Better Instruction as an Alternative to Special Education Placement

One response to the problems of vagueness and inconsistency besetting special education placements is to focus on over-identification as a technical problem — one to be addressed by closer attention to legal or medical criteria and procedures, sensitivity to cultural differences that might confound placement decisions, and so on. We suggest, however, that for many children and many instances of the problem, this *let's-improve-our-classification-procedures* response encourages educators to move in the wrong direction. They would do better to focus instead on how they teach early reading in the first place. Why do we care, after all, whether a child who cannot read well has been correctly or incorrectly classified as, say, learning disabled? The only justifiable reason for distinguishing between children correctly and incorrectly identified as learning disabled would be to determine whether the children in question have different instructional needs. But suppose it turns out that children in both groups benefit from the same sort of instruction. Suppose the child with intrinsic conditions making it difficult for him to learn in school and another child whose difficulties cannot be traced to any such intrinsic conditions both flourish when they are taught to read by Direct Instruction. In that case, bothering about classification procedures would amount merely to misplaced effort: the thing to do would be to get on with the instructional task.

Here is where the case for Direct Instruction in reading comes to bear on the question of costs for remedial instruction. Teachers who use Direct Instruction say that children with or without learning disabilities benefit from Direct Instruction. That is to say, children taught by Direct Instruction learn how to read — some more rapidly than others, of course — and where that is the case the rigmarole of special education rules and procedures becomes increasingly moot as special education placements become increasingly unnecessary.

Potential Savings in Direct Costs

If more children learned to read well early in their schooling, fewer children would require special education and other remedial services later on. The decrease in special education services would yield a cost savings. How large might it be? To arrive at an estimate, we note first that in FY 1997-98 the average cost of educating a Wisconsin student in regular education was $4,580, while the average cost for a student in special education was $7,627. The difference per student is $3,047. Multiplying that difference by the number of Wisconsin students (46,828) enrolled in 1997-98 as learning disabled, we can determine the *added* cost (over and above regular education costs) generated annually (at current rates) by LD placements and programs in the state. The added cost for 1997-98 was $142,684,916.

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How much of this added cost might be saved by improved teaching of reading through Direct Instruction? The answer depends on the assumptions one makes about how many children are currently *over*-identified as learning disabled — that is, placed into LD programs not because of any disability but merely because they have not been taught to read. While virtually all educators agree that many children are over-identified in this way, experts in special education are reluctant to provide firm estimates about what the percentage might be. In light of this, we have considered a range of possibilities, at intervals of 25 percent.

Suppose that Direct Instruction caught on in Wisconsin, such that many school districts throughout the state did a competent job of implementing Direct Instruction programs for teaching reading in the primary grades. Table 2 shows a range of projected savings. If the benefits of improved instruction decreased subsequent LD placements by 25 percent in a given year, Wisconsin would save about $35 million (.25 x $142,684,916 [the added cost for LD in 1997-98]). If LD placements decreased by 50 percent, Wisconsin would save about $71 million (.50 x $142, 684, 916). If LD placements decreased by 75 percent, Wisconsin would save about $107 million (.75 x $142,684,916). In other words, annual spending for LD special education in Wisconsin might be reduced by $35 million to $107 million if Direct Instruction programs for early reading were implemented properly and on a broad scale. (This is a low-end estimate, since it is based on projected reductions in only one special education category, i.e., LD. Early, effective uses of Direct Instruction would most likely reduce placements in other special education categories as well, yielding additional cost savings.)

Table 2 Annual Savings Projected by Reference to Decreased Reliance on LD Placements

Percent decrease in students classified as learning disabled	Projected annual savings (based on 1997-98 LD placements and costs)
25%	$35,671,229
50%	71,342,458
75%	107,013,687

Monetary costs are obviously not the only important consideration here. Serious costs of another sort are incurred by children who feel inadequate and stupid when they struggle unsuccessfully with reading, and these feelings sometimes get played out in destructive behavior. It is not a sure thing, moreover, that all the dollars freed up by decreased spending on special education could be recaptured by educators. But from annual savings of $35 million to $107 million, some dollars would certainly find their way back into the schools, where they could support the public's interest in education in other ways.

Conclusions

Direct Instruction in early reading has been used by elementary school educators with great success. It is effective for teaching reading decoding and reading comprehension, and it fosters favorable attitudes toward reading. Its effects have been demonstrated by research and program evaluation studies nationwide over a period of more than 25 years. While Direct Instruction has generally not been advocated by reading specialists and professors of education, and new teachers tend not to learn about it in their training programs, word about it has spread among classroom teachers and parents, and their interest is reflected in an array of Direct Instruction initiatives now underway throughout the country. Wisconsin is among the states in which this movement may be observed. Early results from six Wisconsin schools using Direct Instruction are consistent with the research record generally. Children in the six schools are benefiting from Direct Instruction, and the principals and teachers involved are enthusiastic about their projects. None of the harmful effects predicted by critics of Direct Instruction have materialized in these projects.

Because it is demonstrably effective, Direct Instruction has implications for public policy. Wisconsin children who do not learn to read early in their schooling get slotted into a host of remedial programs later in their schooling, and these remedial programs are expensive. If more children were taught to read well in their first year or two of schooling, there would be less need for remediation. Widespread uses of Direct Instruction would very likely improve early results, thus decreasing that need. Potential cost savings (calculated by reference to modest assumptions — e.g., a 25 percent decrease in learning disability classifications) are great, as are potential savings in the non-monetary, human costs that arise when children struggle unsuccessfully in their early school experience with reading.

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Recommendations

However one might define the public's interest in K-12 education, it certainly includes effective teaching of early reading. Evidence from research and experience shows that this interest is well-served by teachers who make competent use of Direct Instruction. We recommend, accordingly, a broad-based effort in support of Direct Instruction initiatives throughout Wisconsin.

1. **Parents and educators interested in Direct Instruction should visit schools using Direct Instruction to see for themselves how it looks in practice**. Published scholarship describes Direct Instruction well, and additional information is readily available online from the Association for Direct Instruction (see www.adihome.org). But people seeking to satisfy their curiosity about Direct Instruction really should visit a Direct Instruction school. Firsthand observation yields information with immediacy and particularity. That is especially important in this case, given the campaign by sworn enemies of the obvious to spin a web of obfuscation around Direct Instruction. Many Direct Instruction schools would be pleased to arrange for visits. One good starting place would be the Core Knowledge Charter School in Verona, Wisconsin.

2. **Parents and educators interested in Direct Instruction should band together to share information and muster support for Direct Instruction initiatives**. A first step might be to establish a Wisconsin Direct Instruction web site (again, see www.adihome.org). The web site could provide a statewide, Direct Instruction roster, with names and e-mail addresses of people involved in or interested in Direct Instruction initiatives. In addition to the roster, the web site could provide information, updated continually, about model K-12 programs, university courses, publications, conferences, and other special events related to Direct Instruction. Informal affiliation fostered in this way might lead to something more formal — a Wisconsin Direct Instruction Association, for example, on the order of Wisconsin's new Charter School Association. Such an association could play a lead role in statewide efforts to represent Direct Instruction accurately and to support new uses of it.

3. **The Wisconsin legislature and Department of Public Instruction should support local school districts in Direct Instruction start-up activity through a grants program for payment of Direct Instruction training costs**. The state now supports local school districts in efforts they make to reduce class size in the early grades. Smaller classes create an instructional opportunity for teachers, making it easier for them to choose teaching practices for academic reasons rather than managerial ones. Direct Instruction provides one clear model for using this opportunity well. But districts or schools may be deterred from implementing Direct Instruction by the start-up costs it entails — particularly in respect to adequate training programs. To follow through on its class-size initiative, the state should move to alleviate this problem by establishing a program of grants to pay for training costs. The rationale for doing so is identical to the rationale for the SAGE program. The same public interest that warrants creating an instructional opportunity also warrants support for teachers who respond to that opportunity by adopting proven teaching practices.

4. **In light of the Direct Instruction example, schools and colleges of education in Wisconsin should refocus their preservice teacher training efforts on instruction — on the practice of teaching**. Instruction occurs in a context, obviously, and preservice teachers ought to learn about that context, as viewed from various perspectives, in the course of their training. Even according to the most favorable assumptions about the value of contextual understanding, however, it stops short just where new teachers must take instructional action. New teachers who believe fervently that all children can learn, for example, still must know *what to do* to ensure that their students will learn. To help new teachers at the point where they take action — the one point at which their efforts can actually come to bear on children's learning — it is not enough merely to endorse attitudes or beliefs, extolling them for their good fit with a self-assuring outlook. Instead, training programs need to take up the instructional task, teaching teachers how to use instructional skills validated by their effects on student learning. Here again, Direct Instruction provides one clear model of the skills that might be targeted in such a rediscovery of the primary purpose of teacher training.

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Appendix

Teacher Training Survey
Fall, 2000

Purpose

The primary purpose of this survey is to gather information about how Wisconsin teachers are trained. Specifically, we are interested in information about the training new teachers receive in Direct Instruction. Direct Instruction is a form of instruction used primarily to teach reading and mathematics. Direct Instruction is associated primarily with the work of Dr. Siegfried Engelmann of the University of Oregon and DISTAR (Direct Instruction System for Teaching Arithmetic and Reading). Some Direct Instruction programs are available commercially through SRA. Direct Instruction requires that teachers:

- Use pre-selected, carefully structured examples.
- Use exact wording of the examples and questions (scripts).
- Provide immediate, specific reinforcing responses to students.
- Provide immediate, specific corrections to students.
- Repeat specific questions and examples until students provide correct responses.

Section 1 Teacher Profile

1. Where did you complete your teacher-training program? (Please check all that apply)

___ at a public university in the University of Wisconsin System
___ at a private college in Wisconsin
___ at a public university outside Wisconsin
___ at a private college outside Wisconsin

2. What grade(s) do you teach? (Please check all that apply.)

___ Kindergarten
___ Grade 1
___ Grade 2
___ Grade 3
___ Grade 4
___ Grade 5
___ Grade 6
___ Other (Please explain.)

_____

3. Which of the following best characterizes the location of your school district? (Please check one.)

___ Urban/City school district
___ Suburban
___ Small city or town
___ Rural

4. In what field do you teach?

___ Regular education
___ Exceptional education
___ Other (Please explain. _____)

5. In your teacher training program, did you study/learn about an approach to teaching called Direct Instruction? (See the definition at the top of page 1.)

___ Yes (If you check "yes," please move on to the questions in Section 2 Teacher Training.)

___ No (If you check "no," you're done. Thanks for your help. Please return the survey in the envelope that has been provided.)

Section 2 Teacher Training

1. The extent to which Direct Instruction was emphasized in your teacher training program can best be described as:

___ Minimal emphasis: a topic mentioned occasionally and briefly.

___ Minor emphasis, with discussions linked to introductory readings and lectures.

___ Important emphasis involving study of Direct Instruction theory, research, and instructional materials in one or more of my required courses.

___ Major emphasis, involving practice and coaching in the use of Direct Instruction as well as study about it.

2. In which education courses did you study Direct Instruction? (Check all that apply.)

___ In a course on methods of teaching reading

___ In a course on methods of teaching mathematics

___ In a course on learning and development

___ In an exceptional education course

___ In a course on cultural or historical foundations of education

___ In a field experience/field experience seminar

___ In student teaching/student teaching seminar

___ Other (Identify briefly_____)

3. In your education coursework, what did your study of Direct Instruction include? (Check all that apply.)

___ Textbook readings describing Direct Instruction

___ Lectures describing Direct Instruction

___ Readings and/or lectures on research about Direct Instruction

___ Classroom discussions of Direct Instruction

___ Assigned papers or projects related to Direct Instruction

___ Other (Identify briefly:_____)

___ Direct Instruction was not included in my education coursework.

4. In your field experience or student teaching, what did your study of Direct Instruction include? (Check all that apply.)

___ I observed cooperating teachers using Direct Instruction to teach reading or mathematics.

___ I practiced using Direct Instruction in field experience/student teaching lessons or units.

___ I studied Direct Instruction teaching materials used in my school.

___ I was coached in the use of Direct Instruction by my cooperating teacher.

___ I was coached in the use of Direct Instruction by my university supervisor

___ Other (Identify briefly:_____)

___ Direct Instruction was not included in my field work or student teaching.

5. Overall, how well informed do you feel about Direct Instruction?

___ Poorly informed. I scarcely know what Direct Instruction is.

___ Slightly informed. I have gained some introductory knowledge about Direct Instruction.

___ Informed. I have a good working knowledge about Direct Instruction.

___ Well informed. I have learned a great deal about the theory and practice of Direct Instruction.

___ Very well informed and accomplished as a practitioner. I have become skillful in using Direct Instruction.

7. Describe your own attitude toward Direct Instruction. (Please check one.)

___ Strongly positive. Direct Instruction should be used widely.

___ Generally positive. I would like to use Direct Instruction in my teaching.

___ Generally negative. I would not want to use Direct Instruction in my teaching.

___ Strongly negative. The use of Direct Instruction should not be encouraged.

Thank you for completing the survey. Please return the survey in the envelope that has been provided. (Once again: We guarantee confidentiality for individual responses.)

Request for Survey Results

Please complete the following information if you would like the survey results mailed to you.

Name _____

Address _____

City _____ State ___ Zip Code _____

About the Institute

The **Wisconsin Policy Research Institute** is a not-for-profit institute established to study public-policy issues affecting the state of Wisconsin.

Under the new federalism, government policy increasingly is made at the state and local levels. These public-policy decisions affect the life of every citizen in the state. Our goal is to provide nonpartisan research on key issues affecting Wisconsinites, so that their elected representatives can make informed decisions to improve the quality of life and future of the state.

Our major priority is to increase the accountability of Wisconsin's government. State and local governments must be responsive to the citizenry, both in terms of the programs they devise and the tax money they spend. Accountability should apply in every area to which the state devotes the public's funds.

The Institute's agenda encompasses the following issues: education, welfare and social services, criminal justice, taxes and spending, and economic development.

We believe that the views of the citizens of Wisconsin should guide the decisions of government officials. To help accomplish this, we also conduct regular public-opinion polls that are designed to inform public officials about how the citizenry views major statewide issues. These polls are disseminated through the media and are made available to the general public and the legislative and executive branches of state government. It is essential that elected officials remember that all of the programs they create and all of the money they spend comes from the citizens of Wisconsin and is made available through their taxes. Public policy should reflect the real needs and concerns of all of the citizens of the state and not those of specific special-interest groups.

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